

1722 #3

**CANCELLED**  
APR 03 2001  
PATENT & TRADEMARK OFFICE

**PATENT APPLICATION**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

*Group*

*Art Unit:* 1722

*Attorney*

*Docket No.:* BWT0061

*Applicant:*

John Derek Guest

*Invention:*

MOULDED PLASTICS TUBULAR  
COUPLINGS

*Serial No:*

09/767,514

*Filed:*

January 23, 2001

*Examiner:*

Unknown



Certificate Under 37 CFR 1.8(a)

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner of Patents, Washington, D.C. 20231

on March 28, 2001

Anthony Niewyk

**CLAIM FOR PRIORITY**

Assistant Commissioner for Patents  
Washington, DC 20231

Sir:

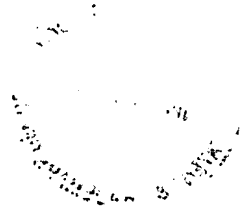
Applicant hereby claims the priority of British Patent Application No. GB0001547.9 filed January 24, 2000, under the provisions of 35 U.S.C. 119.

A certified copy of the priority document is enclosed herewith.

Respectfully submitted,

Anthony Niewyk  
Registration No.: 24,871  
Attorney for Applicant

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INVESTOR IN PEOPLE



The Patent Office  
Concept House  
Cardiff Road  
Newport  
South Wales  
NP10 8QQ

I, the undersigned, being an officer duly authorised in accordance with Section 74(1) and (4) of the Deregulation & Contracting Out Act 1994, to sign and issue certificates on behalf of the Comptroller-General, hereby certify that annexed hereto is a true copy of the documents as originally filed in connection with the patent application identified therein.

I also certify that the attached copy of the request for grant of a Patent (Form 1/77) bears an amendment, effected by this office, following a request by the applicant and agreed to by the Comptroller-General.

In accordance with the Patents (Companies Re-registration) Rules 1982, if a company named in this certificate and any accompanying documents has re-registered under the Companies Act 1980 with the same name as that with which it was registered immediately before re-registration save for the substitution as, or inclusion as, the last part of the name of the words "public limited company" or their equivalents in Welsh, references to the name of the company in this certificate and any accompanying documents shall be treated as references to the name with which it is so re-registered.

In accordance with the rules, the words "public limited company" may be replaced by p.l.c., plc, P.L.C. or PLC.

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Signed

*Andrew Gersey*

Dated

24 October 2000

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GB0001547.9

By virtue of a direction given under Section 30 of the Patents Act 1977, the application is proceeding in the name of

**JOHN GUEST LIMITED**

Horton Road

**WEST DRAYTON**

Middlesex

UB7 8JL

United Kingdom

Incorporated in the United Kingdom

[ADP No. 07934367001]

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Patents Act 1977

(Rule 16)

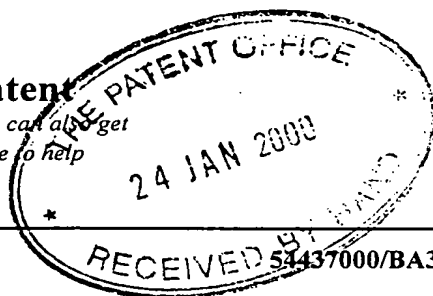
**Request for grant of a patent**

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

25JAN00 E507647-1 D02882  
P01/7700 0.00-0001547.9

The Patent Office

Cardiff Road  
Newport  
Gwent NP9 1RH



1. Your reference **5437000/BA3221**

2. Patent application number  
(The Patent Office will fill in this part)

**0001547.9**

**24 JAN 2000**

3. Full name, address and postcode of the or of each applicant (underline all surnames)

**JOHN DEREK GUEST  
'IONA'  
CANNON HILL WAY  
BRAY  
MAIDENHEAD SL6 2EX  
BERKSHIRE**

SECTION 1(1) APPLICATION FILED 29/1/00

Patents ADP number (if you know it)

**1093079001**

If the applicant is a corporate body, give the country/state of its incorporation

**UNITED KINGDOM**

4. Title of the invention

**IMPROVEMENTS IN OR RELATING TO MOULDED PLASTICS TUBULAR COUPLINGS**

5. Name of your agent (if you have one)

**BOULT WADE TENNANT  
27 FURNIVAL STREET  
LONDON  
EC4A 1PQ**

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

Patents ADP number (if you know it)

**42001** ✓

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country

Priority application number  
(if you know it)

Date of filing  
(day/month/year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing  
(day / month / year)

8. Is a statement of inventorship and of right to grant of a patent required in support of this request?

(Answer 'Yes' if:

- a) any applicant named in part 3 is not an inventor, or
  - b) there is an inventor who is not named as an applicant, or
  - c) any named applicant is a corporate body.
- See note (d))

**NO**

7.

Continuation sheets of this form **NONE**

Description 4

**Claim(s) 2**

**Abstract** NONE

Drawing(s) 2 4 2

10. If you are also filing any of the following, state how many against each item.

Priority documents **NONE**

Translations of priority documents **NONE**

Statement of inventorship and right to grant of a patent (*Patents Form 7/77*) **NONE**

Request for preliminary examination and search (*Patents Form 9/77*) **NONE**

Request for substantive examination **NONE**  
(Patents Form 10/77)

Any other documents **NONE**  
(Please specify)

11 I/We request the grant of a patent on the basis of this application.

**Signature**

Date \_\_\_\_\_

24 January 2000

12.	Name and daytime telephone number of person to contact in the United Kingdom	<b>BAYLISS; GEOFFREY CYRIL</b> <b>020 7430 7500</b>
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*After an application for a patent has been filed, the Comptroller of the Patent Office will consider whether publication or communication of the invention should be prohibited or restricted under Section 22 of the Patents Act 1977. You will be informed if it is necessary to prohibit or restrict your invention in this way. Furthermore, if you live in the United Kingdom, Section 23 of the Patents Act 1977 stops you from applying for a patent abroad without first getting written permission from the Patent Office unless an application has been filed at least 6 weeks beforehand in the United Kingdom for a patent for the same invention and either no direction prohibiting publication or communication has been given, or any such direction has been revoked.*

a) *If you need help to fill in this form or you have any questions, please contact the Patent Office on 01645 500505.*

*b) Write your answers in capital letters using black ink or you may type them.*

c) *If there is not enough space for all the relevant details on any part of this form, please continue on a separate sheet of paper and write "see continuation sheet" in the relevant part(s). Any continuation sheet should be attached to this form.*

d) *If you have answered 'Yes' Patents Form 7/77 will need to be filed.*

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DUPLICATE

- 1 -

IMPROVEMENTS IN OR RELATING TO  
MOULDED PLASTICS TUBULAR COUPLINGS

5 This invention relates to moulded plastics tubular couplings and is particularly although not exclusively applicable to tube end supports for locating a tube end in a tube coupling.

10 My European Patent Publication No. 0756126 discloses a tube coupling comprising a coupling body having a throughway open at one end to receive a tube, the diameter of the throughway increasing towards said open end at a first step to form a first enlarged diameter portion to receive a tube and a second step  
15 to form a second enlarged diameter portion to receive a tube locking device to hold a tube in the coupling body. A thin wall sleeve has one end engageable in the throughway and the other engageable in the tube to be located in the coupling body so that, in use, the  
20 sleeve extends from the tube past the first step into the throughway. The sleeve has a sealing engagement with the internal diameter of the tube to prevent leakage between the sleeve and tube and the end of the sleeve projecting from the tube has an annular seal  
25 with seals with the throughway in the coupling body to prevent leakage between the sleeve and coupling body.

30 My European Patent Application No. 99308504.2 discloses a tube end support for locating a tube end in a tube coupling, comprising a sleeve to be received in a tube, an encircling end stop adjacent one end of the sleeve to limit entry of the sleeve into the tube, encircling gripper means on the sleeve to grip on the  
35 internal diameter of a tube to hold the tube on the sleeve and a separate annular seal supported by the end and projecting radially outwardly thereof to seal with the internal diameter of a tube coupling in which

the assembly of the end support and tube are located.

5 This invention provides a moulded plastics  
tubular coupling having a cylindrical surface to  
engage with a corresponding surface of another  
component, the surface having an annular recess  
therein and a flexible annular diaphragm formed in the  
10 recess integrally with the coupling and having an  
outer periphery extending proud of the cylindrical  
surface to engage and grip the corresponding surface  
of another component.

15 In one construction according to the invention  
the annular recess in the cylindrical surface of the  
coupling is V-shaped and the flexible diaphragm is  
formed at the apex of the V to be able to flex towards  
either side of the V when the coupling is engaged with  
another component.

20 In a preferred form of the invention the recess  
and diaphragm are formed on the outer cylindrical  
surface of the coupling to engage an inner surface of  
a component to encircle the coupling.

25 More specifically, in the case where the coupling  
is intended to receive an end of a length of tubing,  
the coupling may have a sleeve portion having said  
recess and diaphragm formed around the outer surface  
of the sleeve portion partway along the sleeve; a  
30 tapered portion at one end of the sleeve to facilitate  
insertion of the sleeve into an end of a length of  
tubing and an end stop at the other end of the sleeve  
to limit the insertion of the sleeve into the tube.

35 By way of example the end stop may comprise an  
annular head formed at said other end of the sleeve  
projecting outwardly of the sleeve.

In one specific arrangement the head may be formed with means to grip/seal with an encircling component in which the sleeve is engaged.

5           For example the head may have an encircling groove in which an O-ring or similar seal is mounted.

10           In a further arrangement the outer surface of the head may have an annular recess in which a further flexible diaphragm is formed integral with the head and projecting proud of the outer surface of the head to engage and lock the head in the bore of a component in which the coupling is located.

15           The following is a description of some specific embodiments of the invention, reference being made to the accompanying drawings in which :

          Figure 1 is an elevation view of a tube end support for locating a tube end in a tube coupling;

20           Figure 2 is a sectional view through the support of Figure 1;

          Figures 3 and 4 are similar views of an alternative construction.

25           Referring firstly to Figure 1 of the drawings, there is shown a tube end support indicated generally at 10 for locating in an end part of a tube to be inserted in the throughway of a coupling body of a tube coupling, having a locking device such as a  
30           collet to engage the tube end and a seal to seal with the tube end. The tube end support comprises a hard moulded plastics sleeve 11 having an annular head 12 at one end thereof. The sleeve has an internal bore 13 having a flared entry 14 at the head end of the  
35           sleeve.

          The head 12 of the sleeve provides a radially annular face 15 directed along the sleeve which forms

an end stop to limit insertion of the sleeve 16 into a tube end by engagement with the end of the tube as shown in Figure 2.

5           Midway along the sleeve 10 there is an annular V-section groove 19 in the outer surface of the sleeve in which an annular flexible diaphragm 20 is formed integral with the sleeve. The outer periphery of the diaphragm projects slightly beyond the outer periphery  
10 of the sleeve to engage the inner surface of the tube as the tube is forced over the sleeve to grip and seal with the inner diameter of the tube. The tube is thereby retained on the sleeve with a sealing engagement.

15           The end of the sleeve 10 remote from the head 15 has a shallow taper as indicated at 23 around its outer periphery to facilitate insertion of the end of the sleeve in the tube. The head 12 has an encircling  
20 annular square section groove 25 in which an O-ring or similar form of seal 26 is mounted to seal with the internal bore or throughway in the coupling body in which the tube end is located.

25           Figures 3 and 4 show a modified form of the tube support in which the O-ring seal and groove 25, 26 are omitted and in their place the head has an encircling V-section groove 27 in which a further annular  
flexible diaphragm 28 formed integrally with the head  
30 is formed. Again, the outer periphery of the diaphragm projects slightly proud of the outer surface of the head to engage, grip and seal with an internal bore 29 in a component of the tube coupling body 30 in which the tube end support is located.

35

**CLAIMS**

1. A moulded plastics tubular coupling having a cylindrical surface to engage with a corresponding surface of another component, the surface having an annular recess therein and a flexible annular diaphragm formed in the recess integrally with the coupling and having an outer periphery extending proud of the cylindrical surface to engage and grip the corresponding surface of another component.

2. A tubular coupling as claimed in claim 1, wherein the annular recess in the cylindrical surface of the coupling is V-shaped and the flexible diaphragm is formed at the apex of the V to be able to flex towards either side of the V when the coupling is engaged with another component.

3. A coupling as claimed in claim 1 or claim 2, wherein the recess and diaphragm are formed on the outer cylindrical surface of the coupling to engage an inner surface of a component to encircle the coupling.

4. A coupling as claimed in claim 3, wherein the coupling is intended to receive an end of a length of tubing, wherein the coupling has a sleeve portion having said recess and diaphragm formed around the outer surface of the sleeve portion partway along the sleeve; a tapered portion at one end of the sleeve to facilitate insertion of the sleeve into an end of a length of tubing and an end stop at the other end of the sleeve to limit the insertion of the sleeve into the tube.

5. A coupling as claimed in claim 4, wherein the end stop comprises an annular head formed at said other end of the sleeve projecting outwardly of the

sleeve.

5       6.    A coupling as claimed in claim 5, wherein  
the head is formed with means to grip/seal with an  
encircling component in which the sleeve is engaged.

10       7.    A coupling as claimed in claim 6, wherein  
the head has an encircling groove in which an O-ring  
or similar seal is mounted.

15       8.    A coupling as claimed in claim 6, wherein  
the outer surface of the head has an annular recess in  
which a further flexible diaphragm is formed integral  
with the head and projecting proud of the outer  
surface of the head to engage and lock the head in the  
bore of a component in which the coupling is located.

20       9.    A tube support coupling substantially as  
described with reference to and as illustrated in  
Figures 1 and 2 or Figures 3 and 4 of the accompanying  
drawings.

25

## JG-78 "NEW STYLE SEALING TUBE SUPPORT"

INVENTOR: JOHN DEREK GUEST

DATE: 11 JANUARY 2000

10 →

FIG 1

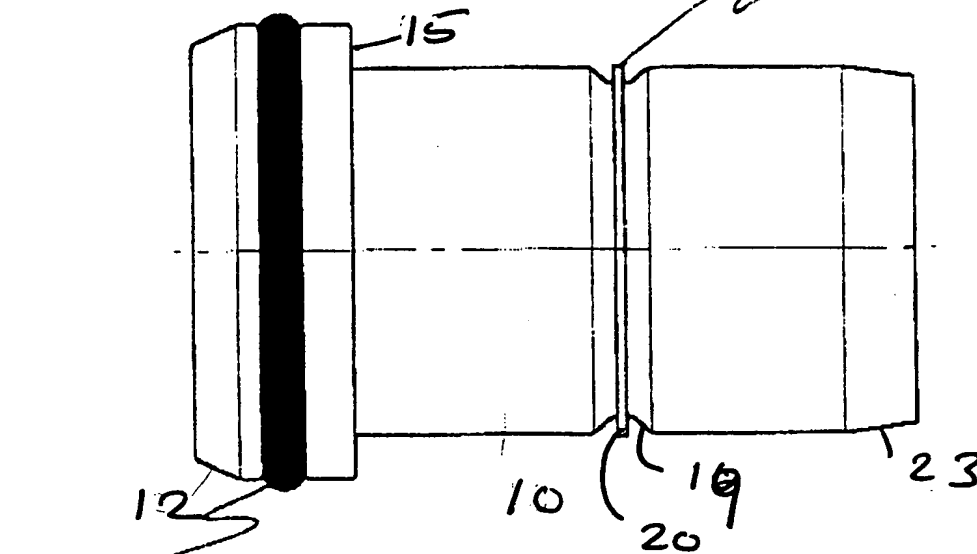
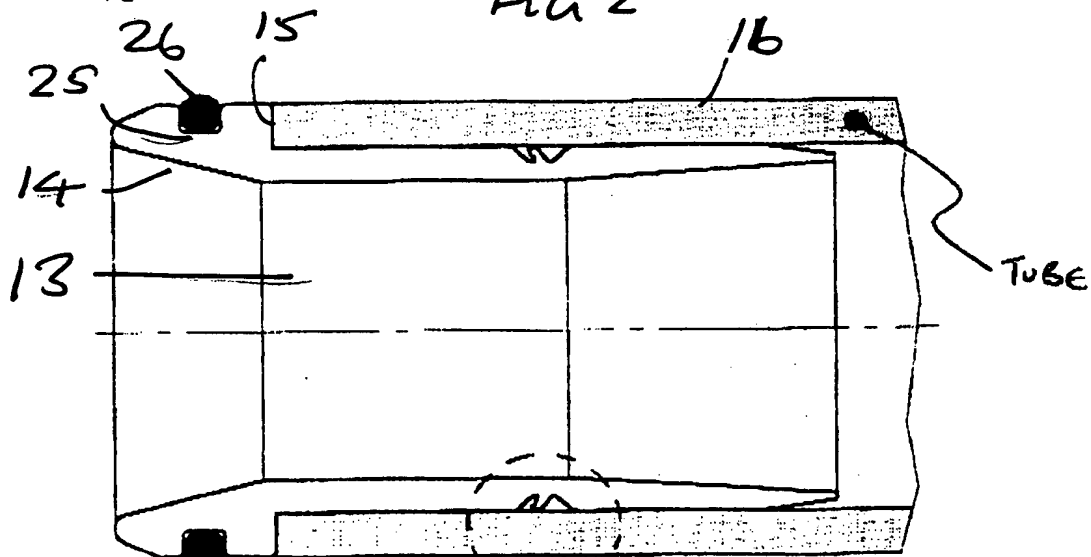
FLEXIBLE  
DIAPHRAGMO RING SEAL  
OR SIMILAR

FIG 2

O RING OR  
OTHER SEALS  
ON CONNECTED  
BODY I.D.ON INSERTION  
INTO TUBE, DIAPHRAGM  
DISTORTS AND THEREBY  
GRIPS AND SEALS ON  
I.D. OF TUBE.

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Fig 3

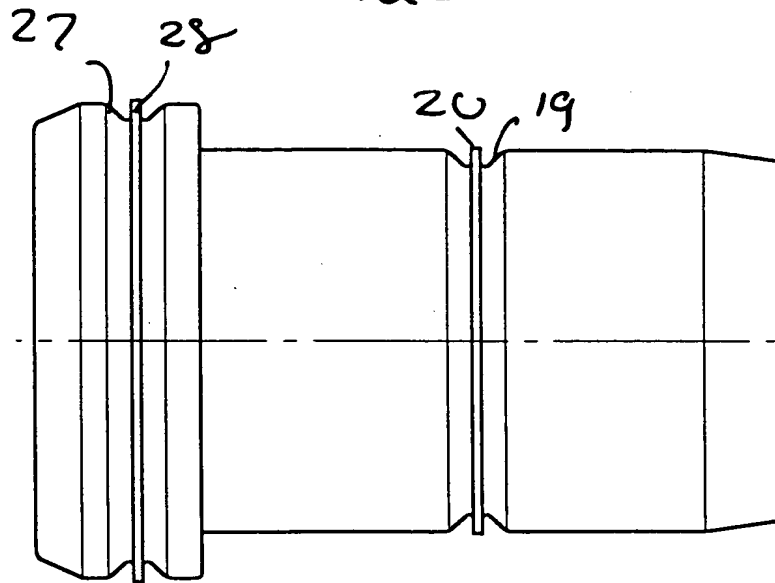
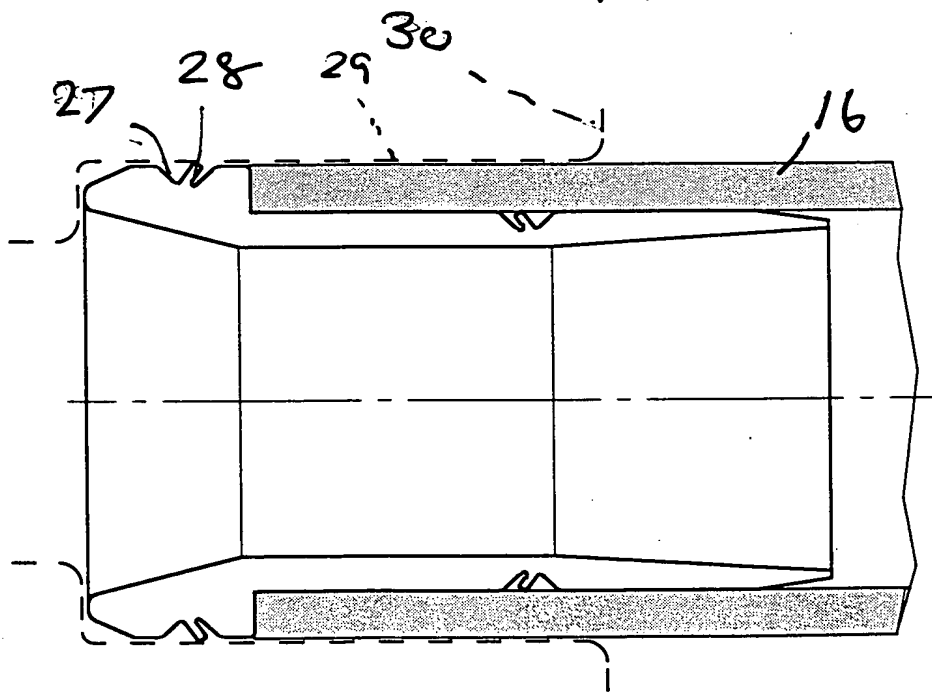


Fig 4



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